

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
9 June 2005 (09.06.2005)

PCT

(10) International Publication Number
WO 2005/052324 A1

(51) International Patent Classification⁷: **F01L 9/02**

(21) International Application Number:
PCT/AU2004/001668

(22) International Filing Date:
29 November 2004 (29.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2003906627 28 November 2003 (28.11.2003) AU

(71) Applicant and

(72) Inventor: **BUSCHKUEHL, Thomas, Friedhelm**
[DE/AU]; 3/23 Pine Avenue, Elwood, VIC 3184 (AU).

(74) Agent: **WATERMARK PATENT & TRADEMARK ATTORNEYS**; 290 Burwood Road, Hawthorn, VIC 3122 (AU).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

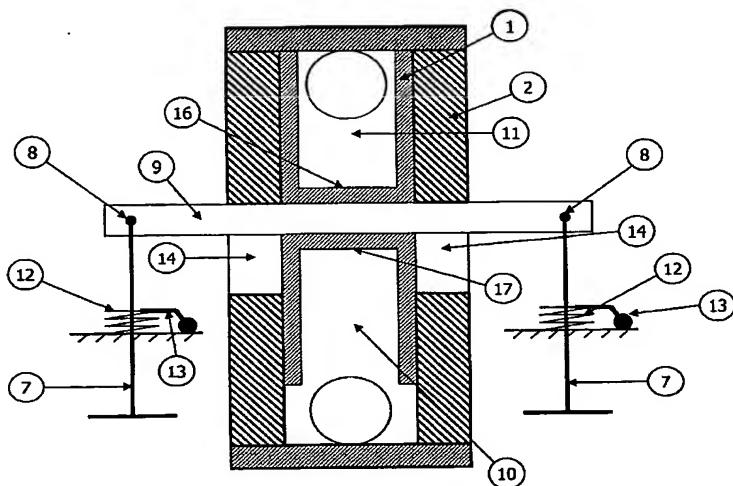
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: VALVE OPERATING APPARATUS AND METHOD FOR AN ENGINE



(57) Abstract: A valve operating apparatus for an internal combustion engine including: a housing (2); a reciprocating piston (1) residing wholly within the housing (2), the reciprocating piston (1) driving one or more poppet valves (7); a first fluid supply path and a first fluid drain path, each path being controllable to supply or drain fluid to/from a first reciprocating piston end (16); a second fluid supply path and a second fluid drain path, each path being controllable to supply or drain fluid to/from a second reciprocating piston end (17); wherein said reciprocating piston (1), in use, is driven between a first position and a second position by controlling said fluid in said supply and drain paths, thereby operating said one or more poppet valves (7), and wherein a connector (9) passes through an aperture (14) in said housing (2) to connect said reciprocating piston (1) to said one or more poppet valves (7), said reciprocating piston (1) in co-operation with an internal wall of the housing forming a seal to prevent substantial egress of fluid from the housing (2) through said aperture (14).

WO 2005/052324 A1